letitudes and vice versa, especially during the transition from the warm to the cold season.

In early autumn the sequence, warm to cold, is of frequent occurrence in the northwest, but only in exceptional cases is the magnitude of the change so great as in the cases under consideration. The rise in pressure

seems to be a reaction from the prevailing low pressure intensified and augmented by local conditions of rainfall and evaporation that promote cooling of the air. As a rule the high pressure does not persist much longer than 24 hours and many times a maximum pressure of 30.40 inches is reached on but a single morning.

## FIRES CAUSED BY LIGHTNING IN IOWA, 1919-1922.

By Roy N. Covert, Meteorologist.

[Weather Bureau, Washington, Aug. 31, 1923.]

An analysis of the table below shows that 74 per cent of the total fire loss caused by lightning in four years occurred amongst the farm barns and dwellings, of which 61 per cent was due to fires in barns which were unrodded while about 6 per cent occurred in barns supposed to be protected by rods. Eight of these latter barns, however, are known to have had defective rods, and in six cases lightning ran in on wires.

The value of rodding is effectively shown. The percentage of total money loss to include all rodded structures is 6.8, and it is estimated that in the rural districts, where most lightning fires take place (probably 80 to 90 per cent), that about half the structures are rodded, so that during these four years out of each hundred fires five to six occurred in rodded structures of which nearly 20 per cent had defective rods and 15 per cent started from lightning coming in on wires, both of which can be

prevented.

It is interesting to note that a little over 17 per cent of the fires occurred in town barns and dwellings, but such fires gave only about 9 per cent of the money loss. The reason is not far to seek. Fires in rural districts usually result in the more or less complete destruction of the structure, while fires in town are generally stopped before they gain much headway. The average loss per building in 390 fires in farm barns and dwellings was \$2,532, while in town the average was \$1,146 for 110 fires among the same kinds of buildings. There would be more lightning fires in town were it not for the presence of overhead wires generally protected by lightning arresters and to other grounded masses of metal, such as stacks, roofs, structural framework of buildings, etc., which take the place of the usual lightining conductors.

Other unrodded structures which are rather frequently fired are grain elevators, churches, granaries, and hay, grain and straw stacks. The buildings should evidently be given protection against lightning by suitable rodding, and it is a relatively simple matter to protect a stack in the field by stringing a bundle of two or three wires across and well above the stack from two supporting

poles on opposite sides where the ends of the wire are grounded to iron pipes.

The table was arranged from data compiled by Mr. J. A. Tracey, the fire marshal of Iowa, secured by him from chiefs, mayors and others, and presents the most complete and detailed information regarding lightning fires of which we have knowledge.

Table 1.—Details as to rodding, kind of structure, location and estimated money loss.

Num- ber.	Kind.	Loss.	Per cent of total loss.	Num- ber.	Kind.	Loss.	Per cent of total loss.
	UNRODDED STRUCTURES.				UNROUDED STRUCTURES—con.		
363 37 27 73 1 1 1 3 2 1 1 1 1 1 2 1	Farm barns. Town barns. Farm dwellings. Town dwellings. Auto sales room Bank Blacksmith shop. Cafes. Carpet cleaning. Cheese factory. Churches. Dry cleaning. Electric light plant Factories. Fair ground build- ing. Feed mill.	\$894, 546 49, 199 92, 894 76, 928 200 4,060 2, 332 7, 000 36, 471 75 26, 000 3, 000 5, 000	61. 1 3. 4 6. 3 5. 3	2 1 7 1 30 3 2 1 1 1 1 1	Railroad depots Restaurant School houses Smoke house Stocks, hay, grain or straw Storage houses Stores Street car Substation Tank-wagon sta- tion Telephone cable box Transformer sta- tion Warehouses	1, 200 965 7, 595 300 5, 213 10, 864 8, 144 62 511 2, 000 50 51, 468	
1 7 8	Foundry	350 12,716 58,684	4.0	629	Water tank	75 1,363,704	
11 3 1 3	Granaries	17,040 3,800 100 3,725		28	RODDED STRUCTURES.	01 001	
1 1 2	Ice house	2, 128 2, 000		28 6 5	Farm barns		5.6 1.2
I 2 1	Machine shed Office buildings Printing office	2,500		39	TOTAL.	100,476	
1 1	Produce house Public library Pump house	21,525 100		668		1, 464, 180	

Average yearly loss, 167 structures, valued at \$366,045.

## NOTES, ABSTRACTS, AND REVIEWS.

## DAILY WEATHER BULLETINS TRANSMITTED BY RADIO FROM THE UNITED STATES TO FRANCE.<sup>1</sup>

By E. B. CALVERT, Chief of Forecast Division.

[Weather Pureso, Washington, Sept. 27, 1923.]

The United States Weather Bureau sends each evening, Sundays and holidays included, to the French Meteorological Service at Paris, a bulletin containing observations taken at a number of stations in the United States, Alaska, and Canada, the position at the same hour of dominating high and low pressure areas, and weather reports from a limited number of ships in the North Atlantic Ocean. All land observations are of

hour 0100 G. M. T., and Alaskan reports of hour 2100 G. M. T., current date. The bulletin is addressed to "Angot, Paris," and is forwarded through the United States naval radio station at Annapolis (NSS) to the radio station at Lyons (YN). The transmissions are made on a wave length of 17,145 meters, C. W., as the first message in the Annapolis schedule with France. This schedule begins at 0530 G. M. T., and transmission commences as soon thereafter as communication with Lyons (YN) can be established.

The messages are coded in a modified form of the International Meteorological Code, except that a date word is used to show the day of the month and the period of the day (a. m. or p. m.) that the land observations were taken, and key letters instead of numerals to design

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